

**What is claimed is:**

1           1.    A    laser    diode    light-emitting    system,  
2    comprising:

3           a laser diode module receiving a driving current to  
4           emit light and outputting a brightness signal  
5           corresponding to the brightness of the light;

6           a driving module changing a voltage level of a  
7           driving signal according to a voltage level of  
8           the brightness signal; and

9           a plurality of bipolar junction transistors (BJTs),  
10          connected in parallel and coupled to a voltage  
11          source, providing the driving current to the  
12          laser diode module, wherein bases of the BJTs  
13          are coupled to the driving signal and wherein a  
14          value of the driving current is changed  
15          according to the voltage level of the driving  
16          signal.

1           2.    The laser diode light-emitting system as  
2    claimed in claim 1, wherein the BJT is a PNP-type  
3    transistor having a collector outputting the driving  
4    current to the laser diode module and an emitter coupled  
5    to the voltage source and wherein the driving signal is  
6    directly proportional to the brightness signal and  
7    inversely proportional to the driving current.

1           3.    The laser diode light-emitting system as  
2    claimed in claim 1, wherein the BJT is a NPN-type  
3    transistor having an emitter outputting the driving  
4    current to the laser diode module and a collector coupled

5 to the voltage source and wherein the driving signal is  
6 directly proportional to the brightness signal and  
7 inversely proportional to the driving current.

1 4. The laser diode light-emitting system as  
2 claimed in claim 1, wherein the laser diode module  
3 comprises:

4 a laser diode receiving the driving current to emit  
5 light; and

6 a photo-detector detecting the brightness of the  
7 light emitted from the laser diode to generate  
8 the brightness signal, wherein the brightness  
9 of the light emitted from the laser diode is  
10 directly proportional to the brightness signal.

1 5. A laser diode driving device outputting a  
2 driving current to a laser diode module, wherein when  
3 receiving the driving current, the laser diode module  
4 emits light and outputs a brightness signal corresponding  
5 to the brightness of the light, comprising:

6 a plurality of bipolar junction transistors (BJTs),  
7 connected in parallel and coupled to a voltage  
8 source, supplying the driving current to the  
9 laser diode module; and

10 a driving module changing a voltage level of a  
11 driving signal according to a voltage level of  
12 the brightness signal.

1 6. The driving device as claimed in claim 5,  
2 wherein the BJT is a PNP-type transistor having a  
3 collector outputting the driving current to the laser

4 diode module and an emitter coupled to the voltage source  
5 and wherein the driving signal is directly proportional  
6 to the brightness signal and inversely proportional to  
7 the driving current.

1 7. The driving device as claimed in Claim 5,  
2 wherein the BJT is a NPN-type transistor having an  
3 emitter outputting the driving current to the laser diode  
4 module and a collector coupled to the voltage source and  
5 wherein the driving signal is directly proportional to  
6 the brightness signal and inversely proportional to the  
7 driving current.

1 8. A laser diode driving circuit, comprising:  
2 a laser diode module receiving a driving current to  
3 emit light and output a brightness signal  
4 corresponding to the brightness of the light;  
5 a driving module changing a voltage level of a  
6 driving signal according to a voltage level of  
7 the brightness signal; and  
8 a plurality of current paths, each of which is  
9 controlled by the driving signal, wherein an  
10 amount of total currents on all current paths  
11 is the driving current, wherein the driving  
12 current is changed according to the voltage  
13 level of the driving signal, and wherein the  
14 current on each current path is in an active  
15 region.

1 9. The driving circuit as claimed in claim 8,  
2 wherein each of the current paths is a PNP-type bipolar

3 junction transistor with a collector coupled to the laser  
4 diode module, an emitter coupled to the voltage source,  
5 and a base coupled to the driving signal and wherein the  
6 driving signal is directly proportional to the brightness  
7 signal.

1 10. The driving circuit as claimed in claim 8,  
2 wherein each of the current paths is a NPN-type bipolar  
3 junction transistor with an emitter coupled to the laser  
4 diode module, a collector coupled to the voltage source,  
5 and a base coupled to the driving signal and wherein the  
6 driving signal is inversely proportional to the  
7 brightness signal.